

CONTRIBUTIONS TO THE FLORA AND ECOLOGY OF THE NORTHERN LONGLEAF PINE BELT IN RANKIN COUNTY, MISSISSIPPI

MICHAEL WAYNE MORRIS

*Department of Biology
North Georgia College & State University
Dahlonega, GA 30597, U.S.A.*

ABSTRACT

A study of beech-magnolia forests and adjacent habitats in southern Rankin County, Mississippi, in 1995, resulted in the documentation of twelve species of angiosperms considered rare or imperiled in Mississippi. In addition, populations of several vascular plant species previously known only from localities considerably farther south, either in the southern Longleaf Pine Belt or Coastal Pine Meadows physiographic regions, were discovered during the course of field surveys. The rare or unusual species reported herein from the extreme northern edge of the Longleaf Pine Belt in central Mississippi are *Aster adnatus*, *Hypericum galioides*, *H. setosum*, *Hyptis alata*, *Illicium floridanum*, *Ludwigia linearis*, *Melanthium virginicum*, *Mikania cordifolia*, *Panax quinquefolium*, *Persea palustris*, *Platanthera cristata*, *Pluchea foetida*, *Polygala boykinii*, *Rhapidophyllum bystrix*, *Sabatia campanulata*, *Schisandra glabra*, *Stewartia malacodendron*, *Triphora trianthophora*, and *Verbesina walteri*. *Iris cristata* is reported as occurring at the southern periphery of its range in Rankin County. The associated plant communities of these taxa are also discussed.

RESUMEN

Un estudio de los bosques de *Fagus grandifolia*-*Magnolia grandiflora* y hábitats adyacentes en el sur del Condado de Rankin, Mississippi, en 1995, dio como resultado la documentación de doce especies de of angiospermas consideradas raras o en peligro en Mississippi. Además, fueron descubiertas poblaciones de varias especies de plantas vasculares previamente conocidas sólo en localidades mucho más al sur, tanto en el sur de las regiones de Longleaf Pine Belt o de Coastal Pine Meadows, durante los muestreos de campo. Las especies raras o poco frecuentes que se citan aquí del extremo norte del Longleaf Pine Belt en Mississippi central son *Aster adnatus*, *Hypericum galioides*, *H. setosum*, *Hyptis alata*, *Illicium floridanum*, *Ludwigia linearis*, *Melanthium virginicum*, *Mikania cordifolia*, *Panax quinquefolium*, *Persea palustris*, *Platanthera cristata*, *Pluchea foetida*, *Polygala boykinii*, *Rhapidophyllum bystrix*, *Sabatia campanulata*, *Schisandra glabra*, *Stewartia malacodendron*, *Triphora trianthophora*, y *Verbesina walteri*. *Iris cristata* es citado en el extremo sur de su área en el Condado de Rankin. Se discuten también las comunidades vegetales asociadas de estos taxa.

INTRODUCTION

Rankin County is located in central Mississippi, due east of and adjacent to Hinds County, in which the city of Jackson is located (Fig. 1). The southern part of Rankin County is included in the Longleaf Pine Belt physi-

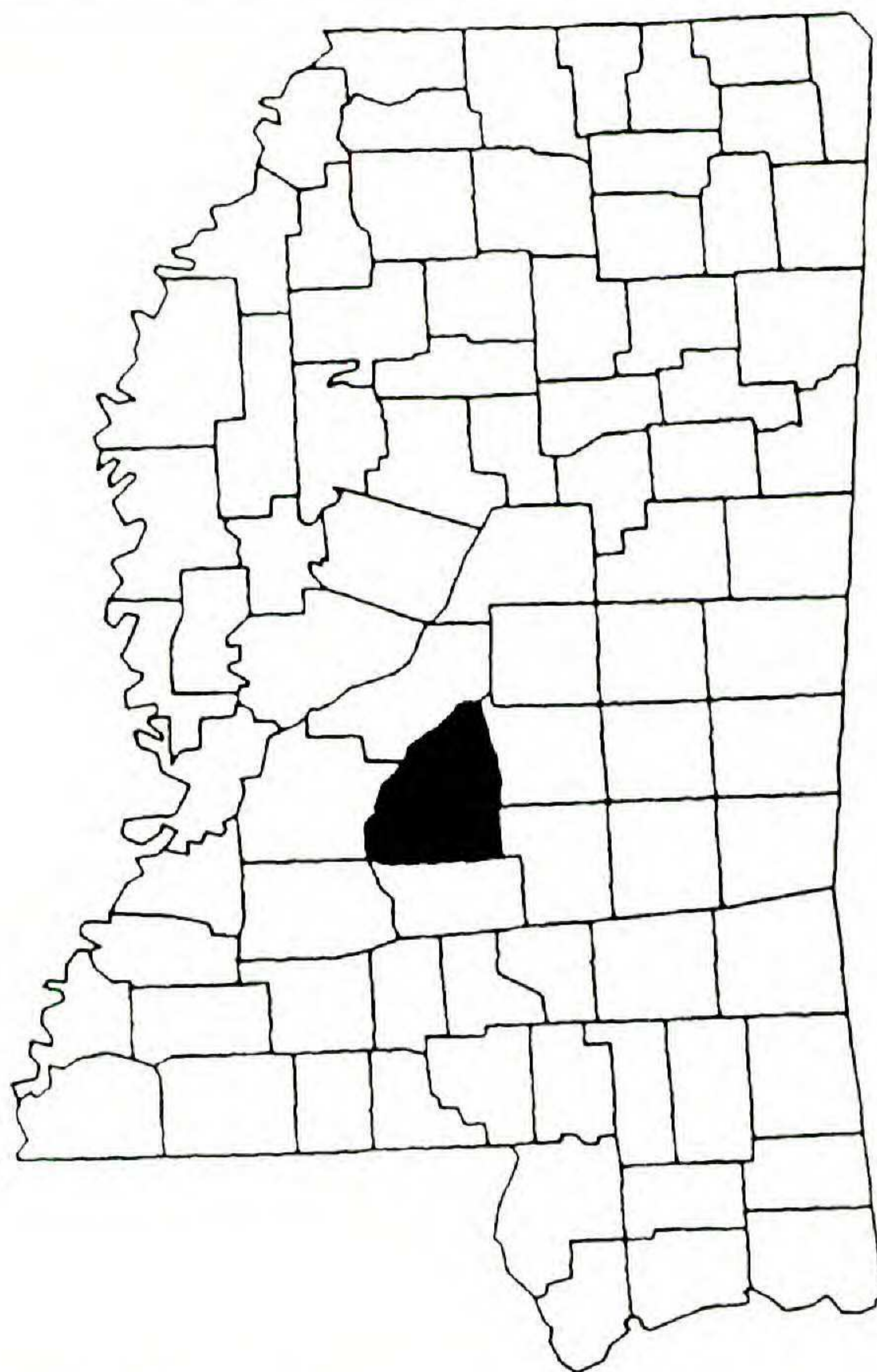


FIG. 1. Location of Rankin County, Mississippi.

ographic region (Lowe 1921). The flora of this area, as well as other areas in the northern Longleaf Pine Belt of Mississippi, is poorly known. Botanical investigations conducted in the southern part of this physiographic region include Harper (1914), Carter and Jones (1968), Mills and Jones (1969), and Rogers (1977); therefore, a considerable body of information concerning vascular plants already exists for that portion of the state. The main purpose of this study was to inventory beech-magnolia forests, referred to as Southern Mixed Hardwood Forests by Ware et al. (1993), and adjacent habitats at the northern periphery of the Longleaf Pine Belt in southern Rankin County, especially for vascular plant species listed as rare or imperiled by the Mississippi Natural Heritage Program (1996). Springs, bogs, and bay swamps at or near the sources of streams and longleaf pine-scrub oak communities on the surrounding ridges were surveyed as well as the Southern Mixed Hardwood Forests. Characteristic species of each community type are listed in Tables 1, 2, and 3. Field work in this area has resulted in the discovery of additional populations of twelve species of plants considered rare or imperiled in Mississippi, as well as new stations for several species at the peripheries of their ranges.

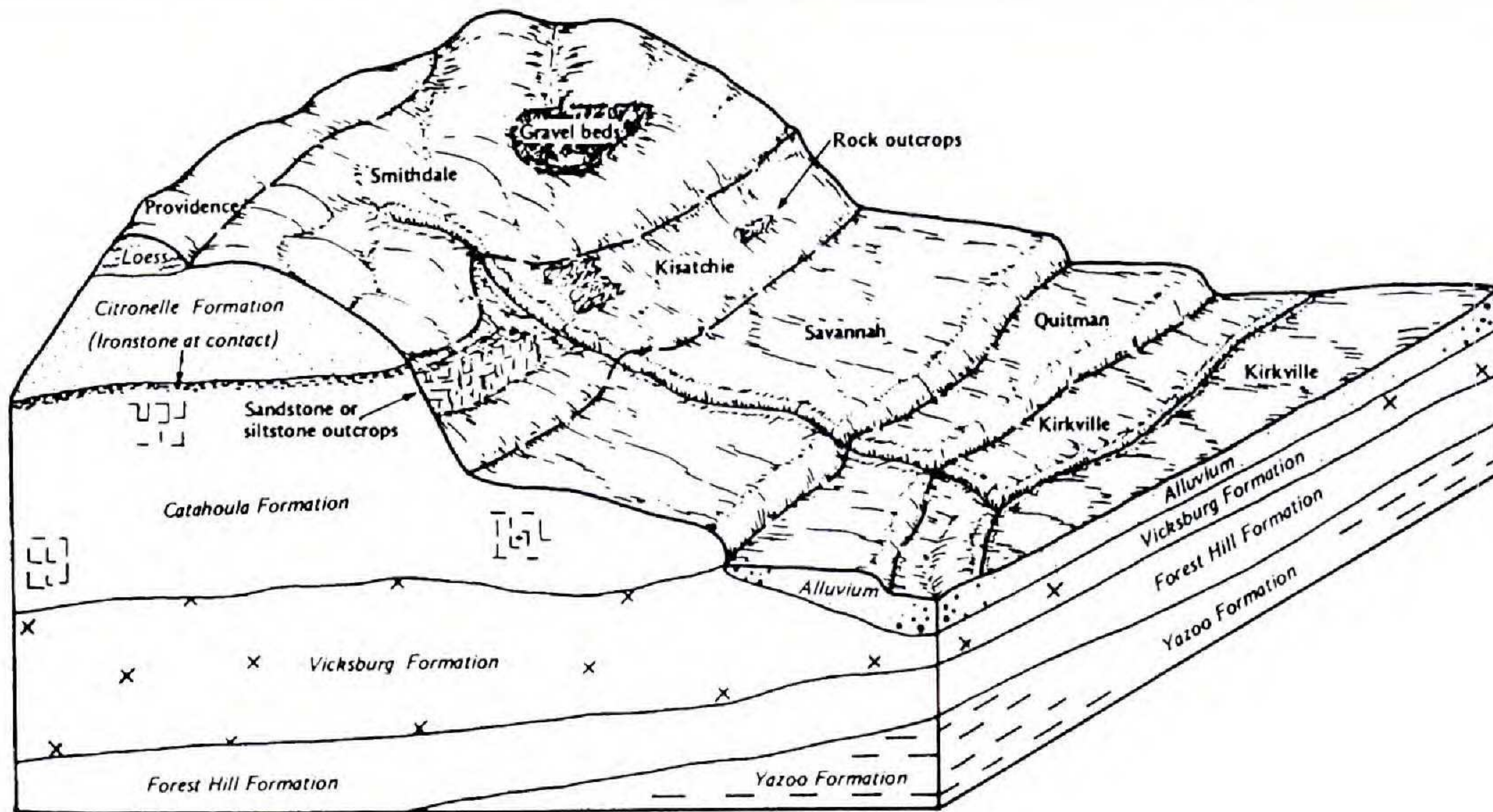


FIG 2. Soils and geologic formations in southern Rankin County, Mississippi.

Soils in the study area are primarily of the Smithdale-Providence-Kisatchie, Smithdale-Providence, Savannah-Quitman, and Quitman-Kirkville associations (Cole et al. 1987). Providence soils are derived from loessial deposits; Smithdale soils are included in the Citronelle Formation; Kisatchie and Savannah soils comprise the Catahoula Formation in this area; and both Quitman and Kirkville soils are classified in the Vicksburg Formation (Fig. 2). According to Cole et al. (1987), Smithdale-Providence-Kisatchie soils are mostly deep, well-drained, medium acid to extremely acid soils on rugged dissected upland with narrow ridgetops, steep hillsides, and short drainageways; they also state that shallow to deep ravines and outcrops of sandstone and siltstone are frequently associated. Permeability is moderate to very slow, available water capacity is moderate to low, and texture ranges from clay to silt, loam, and sand. Smithdale-Providence soils are mostly well-drained, medium to very strongly acid soils on rolling to hilly upland ridgetops and steep hillsides. Permeability is moderate to moderately slow (in the fragipan), available water capacity is moderate, and texture is mostly loamy to silty. Savannah-Quitman soils are mostly deep, moderately well-drained, strongly to very strongly acid soils on gently sloping stream terraces and sloping uplands. Permeability is moderate to moderately slow, available water capacity is moderate, and texture is mostly loamy. Quitman-Kirkville soils occupy nearly level areas on stream terraces and floodplains and are mostly deep, moderately well-drained, strongly acid to very strongly acid soils. Permeability is moderate

to moderately slow, available water capacity is moderate, and texture is usually a fine sandy loam.

Elevation above sea level in southern Rankin County ranges from approximately 220 feet in the floodplain of the Pearl River to about 612 feet on Shiloh Hill (Cole et al. 1987). Both the Pearl River and its tributary, the Strong River, drain this region, and a ridge dividing the two watersheds crosses the area in a southwest-northeast direction.

Due to urban expansion in western Rankin County near the city of Jackson, agricultural practices, and the lumber industry, much of the native vegetation has been drastically altered; however, many sites still exist that are minimally disturbed, especially in areas that are too steep to clear. Southern Mixed Hardwood Forests (beech-magnolia forests) are well-developed primarily in deep ravines, on north- and west-facing slopes and bluffs above streams, and in rich creek bottoms.

The terminology of physiographic regions in Mississippi in the discussion of noteworthy vascular plant species follows Morris (1989) as adapted from Lowe (1921). Other works consulted in the compilation of this paper in addition to those specifically cited in the following discussion include Clewell (1985), Godfrey (1988), and Radford et al. (1968). Herbarium abbreviations follow Holmgren et al. (1990) except MMNS (Mississippi Museum of Natural Science, Jackson, Mississippi), NGC (North Georgia College, & State University, Dahlonega, Georgia), and mwm (Michael Wayne Morris, pers. herb.).

NOTEWORTHY SPECIES

ARALIACEAE

Panax quinquefolium L. Mississippi. Rankin Co.: ca 10 km SE of Star, 25 Aug 1995, *Morris 4484* (MMNS). Ginseng occurs here in rich hardwoods on a gentle, N-facing slope in the relatively flat Dabbs Creek bottom. The species is listed as rare or uncommon in Mississippi (MNHP 1996), and it is found at widely scattered localities mainly in the northern and central portions of the state in the Loess Bluff, North Central Plateau, Interior Flatwoods, Pontotoc Ridge, Black Prairie, Tennessee River Hills, and Jackson Prairie Regions (Morris et al. 1993). It is now known south to Wilkinson, Hinds, Rankin, Smith, and Lauderdale counties (MNHP 1996).

ARECACEAE

Rhapidophyllum hystrix (Pursh) Wendl. & Drude. Mississippi. Rankin Co.: ca 9 km W of Puckett, 26 Aug 1995, *Morris 4497* (IBE, MMNS). Needle palm is classified as rare in Mississippi (MNHP 1996), and this site on the undulating terrace of Campbell Creek is at the northwestern periphery of the species' entire range in the southeastern United States (Clancy 1988). This population consists of one large and two small crowns of the same genetic individual on the upper bank of a large stream near its confluence with Campbell Creek. Rankin County was not included in the total range of needle palm by Clancy (1988).

TABLE 1. Characteristic species of Southern Mixed Hardwood Forests in southern Rankin County.

Overstory	
<i>Acer barbatum</i>	<i>Pinus taeda</i>
<i>A. rubrum</i>	<i>Prunus serotina</i>
<i>Carya glabra</i>	<i>Quercus alba</i>
<i>C. tomentosa</i>	<i>Q. falcata</i>
<i>Castanea dentata</i>	<i>Q. laurifolia</i>
<i>Fagus grandifolia</i>	<i>Q. michauxii</i>
<i>Liquidambar styraciflua</i>	<i>Q. nigra</i>
<i>Liriodendron tulipifera</i>	<i>Q. pagoda</i>
<i>Magnolia grandiflora</i>	<i>Q. shumardii</i>
<i>Nyssa sylvatica</i>	<i>Q. velutina</i>
<i>Pinus glabra</i>	<i>Tilia americana</i>
Understory Trees, Shrubs, and Woody Vines	
<i>Aesculus pavia</i>	<i>Illicium floridanum</i>
<i>Amelanchier arborea</i>	<i>Lindera benzoin</i>
<i>Asimina parviflora</i>	<i>Magnolia macrophylla</i>
<i>A. triloba</i>	<i>Ostrya virginiana</i>
<i>Carpinus caroliniana</i>	<i>Oxydendrum arboreum</i>
<i>Chionanthus virginicus</i>	<i>Prunus mexicana</i>
<i>Cornus florida</i>	<i>Ptelea trifoliata</i>
<i>Erythrina herbacea</i>	<i>Rhamnus caroliniana</i>
<i>Gelsemium sempervirens</i>	<i>Rhapidophyllum hystrix</i>
<i>Halesia diptera</i>	<i>Rhododendron canescens</i>
<i>Hamamelis virginiana</i>	<i>Schisandra glabra</i>
<i>Hydrangea quercifolia</i>	<i>Sebastiania fruticosa</i>
<i>Hypericum hypericoides</i>	<i>Smilax pumila</i>
<i>H. prolificum</i>	<i>S. smallii</i>
<i>Ilex ambigua</i> var. <i>ambigua</i>	<i>Stewartia malacodendron</i>
<i>I. ambigua</i> var. <i>monticola</i>	<i>Styrax grandifolia</i>
<i>I. decidua</i>	<i>Symplocos tinctoria</i>
<i>I. opaca</i>	<i>Vaccinium arboreum</i>
	<i>V. elliotii</i>
Herbs	
<i>Antennaria solitaria</i>	<i>Panax quinquefolium</i>
<i>Arisaema dracontium</i>	<i>Phryma leptostachya</i>
<i>A. quinatum</i>	<i>Polymnia uvedalia</i>
<i>Aristolochia serpentaria</i>	<i>Polystichum acrostichoides</i>
<i>Asclepias variegata</i>	<i>Prenanthes serpentaria</i>
<i>Brintonia discoidea</i>	<i>Sanguinaria canadensis</i>
<i>Chamaelirium luteum</i>	<i>Smilacina racemosa</i>
<i>Desmodium nudiflorum</i>	<i>Spigelia marilandica</i>
<i>Epifagus virginiana</i>	<i>Thelypteris hexagonoptera</i>
<i>Erigeron pulchellus</i>	<i>T. kunthii</i>
<i>Hexastylis arifolia</i>	<i>Tipularia discolor</i>
<i>Isotria verticillata</i>	<i>Trillium cuneatum</i>
<i>Lilium michauxii</i>	<i>Uvularia perfoliata</i>
<i>Matelea carolinensis</i>	<i>U. sessilifolia</i>
<i>Medeola virginiana</i>	<i>Viola affinis</i>
<i>Mikania cordifolia</i>	<i>V. palmata</i>
<i>Mitchella repens</i>	<i>V. walteri</i>

TABLE 2. Characteristic species of seeps, springs, bogs, and bay swamps in southern Rankin County.

Woody Species	
<i>Acer rubrum</i>	<i>Persea palustris</i>
<i>Aronia arbutifolia</i>	<i>Pinus taeda</i>
<i>Cephalanthus occidentalis</i>	<i>Quercus laurifolia</i>
<i>Decumaria barbara</i>	<i>Q. nigra</i>
<i>Hypericum crux-andreae</i>	<i>Rhododendron canescens</i>
<i>Itea virginica</i>	<i>Smilax laurifolia</i>
<i>Lyonia ligustrina</i>	<i>Toxicodendron vernix</i>
<i>Magnolia virginiana</i>	<i>Vaccinium corymbosum</i>
<i>Myrica cerifera</i>	<i>Viburnum dentatum</i>
<i>M. heterophylla</i>	<i>V. nudum</i>
<i>Nyssa sylvatica</i> var. <i>biflora</i>	

Herbs	
<i>Aletris aurea</i>	<i>Lysimachia lanceolata</i>
<i>Aster sericocarpoides</i>	<i>Melanthium virginicum</i>
<i>Bartonia paniculata</i>	<i>Mitreola petiolata</i>
<i>Cacalia ovata</i>	<i>M. sessilifolia</i>
<i>Carex glaucescens</i>	<i>Osmunda cinnamomea</i>
<i>C. lurida</i>	<i>O. regalis</i>
<i>Chasmanthium laxum</i>	<i>Oxypolis rigidior</i>
<i>Cyperus haspan</i>	<i>Panicum microcarpon</i>
<i>Drosera capillaris</i>	<i>Platanthera ciliaris</i>
<i>Eleocharis microcarpa</i>	<i>P. clavellata</i>
<i>E. tuberculosa</i>	<i>P. cristata</i>
<i>Elephantopus nudatus</i>	<i>Pluchea foetida</i>
<i>Eryngium integrifolium</i>	<i>Polygala cruciata</i>
<i>Eupatorium fistulosum</i>	<i>P. mariana</i>
<i>E. perfoliatum</i>	<i>Rhexia mariana</i>
<i>E. rotundifolium</i>	<i>R. virginica</i>
<i>E. semiserratum</i>	<i>Rhynchospora globularis</i>
<i>Fuirena squarrosa</i>	<i>R. glomerata</i>
<i>Gratiola pilosa</i>	<i>R. gracilentia</i>
<i>Hydrolea ovata</i>	<i>R. inexpansa</i>
<i>Hypericum gymnanthum</i>	<i>R. rariflora</i>
<i>H. setosum</i>	<i>Sabatia campanulata</i>
<i>Hyptis alata</i>	<i>Solidago patula</i>
<i>Juncus marginatus</i>	<i>S. rugosa</i>
<i>Lechea minor</i>	<i>Spiranthes praecox</i>
<i>Lespedeza capitata</i>	<i>Viola primulifolia</i>
<i>Liatris spicata</i>	<i>Woodwardia areolata</i>
<i>Linum striatum</i>	<i>Xyris difformis</i>
<i>Ludwigia birtella</i>	<i>X. iridifolia</i>
<i>L. linearis</i>	<i>X. torta</i>
<i>Lycopodium alopecuroides</i>	

TABLE 3. Characteristic species of longleaf pine-scrub oak communities in southern Rankin County.

Woody Species	
<i>Carya pallida</i>	<i>Pinus taeda</i>
<i>C. tomentosa</i>	<i>Prunus umbellata</i>
<i>Castanea pumila</i>	<i>Quercus falcata</i>
<i>Ceanothus americanus</i>	<i>Q. hemisphaerica</i>
<i>Celtis tenuifolia</i>	<i>Q. marilandica</i>
<i>Ilex vomitoria</i>	<i>Q. stellata</i>
<i>Malus angustifolia</i>	<i>Rhus copallina</i>
<i>Myrica cerifera</i>	<i>Toxicodendron toxicarium</i>
<i>Nyssa sylvatica</i>	<i>Vaccinium arboreum</i>
<i>Pinus echinata</i>	<i>V. stamineum</i>
<i>P. palustris</i>	

Herbs	
<i>Agave virginica</i>	<i>Lespedeza birta</i>
<i>Asclepias amplexicaulis</i>	<i>L. stuevei</i>
<i>A. verticillata</i>	<i>Liatris squarrosa</i>
<i>Aster adnatus</i>	<i>L. squarrulosa</i>
<i>A. concolor</i>	<i>Monarda punctata</i>
<i>A. linariifolius</i>	<i>Onosmodium virginianum</i>
<i>Aureolaria pectinata</i>	<i>Pityopsis graminifolia</i>
<i>Bonamia humistrata</i>	<i>Polygala nana</i>
<i>Crotonopsis elliptica</i>	<i>Pteridium aquilinum</i>
<i>Cyperus plukenetii</i>	<i>Sabatia brachiata</i>
<i>Danthonia sericea</i>	<i>Schizachyrium scoparium</i>
<i>Desmodium laevigatum</i>	<i>Seymeria cassioides</i>
<i>Eryngium yuccifolium</i>	<i>Solidago odora</i>
<i>Eupatorium album</i>	<i>Tephrosia virginiana</i>
<i>Gymnopogon ambiguus</i>	<i>Viola pedata</i>

ASTERACEAE

Aster adnatus Nutt. Mississippi. Rankin Co.: ca 3 km SSW of Star, 1 Aug 1995, *Morris 4390* (IBE). Chainleaf aster is locally infrequent at this locality near sandstone and siltstone outcrops on a longleaf pine ridge. Previously this interesting species was known from sandhills in Jasper (Carraway 1990) and Smith (Lowe 1921) counties and south to the Gulf of Mexico. The Rankin County population extends the documented range of chainleaf aster northwestward in Mississippi by about 70 km.

Mikania cordifolia (L.f.) Willd. Mississippi. Rankin Co.: ca 4 km NE of Puckett, 21 Aug 1995, *Morris 4459* (IBE, MMNS, NGC, SWSL). Characteristic of bluffs and thickets in rich hardwood forests, this hempweed is considered rare to uncommon in Mississippi (MNHP 1996); and it is present at the northern edge of its range in Rankin County. Otherwise, it is found in Mississippi from Jones County [(Morgan 1979); (2 Aug 1978, *Morgan 1076*, IBE)] in the Longleaf Pine Belt and Claiborne County (MNHP 1996) in the Loess Bluffs southward. Based on herbarium records, the species appears to be most common in the southern Loess Bluff Region. At the Rankin County site, *M. cordifolia* is found in rich hardwoods on the natural levee of Purvis Creek.

Pluchea foetida (L.) DC. Mississippi. Rankin Co.: ca 8 km SW of Johns, 7 Aug 1995, *Morris 4406* (IBE, NGC). This species is present at the margin of longleaf pine woods in a

seepage area along a gas pipeline. Prior to this collection, *P. foetida* was only documented in Mississippi from Clarke County [(17 Aug 1892, *Boydstrum s.n.*, MISSA); (19 Jul 1967, *Jones 14561 & Jones*, MISS)] to Simpson County (15 Jul 1970, *Jones 19253*, MISS) and south to the coast.

Verbesina walteri Shinnery. Mississippi. Rankin Co.: ca 2 km SE of Puckett, 9 Aug 1995, *Morris 4423* (IBE, NGC). *Verbesina walteri* occurs here at the edge of damp deciduous woods in the floodplain and on the natural levee of the Strong River. This composite appears to be restricted to the shaded margins of moist hardwood forests in the Longleaf Pine Belt in Mississippi from Smith (11 Oct 1968, *Temple 10761*, MISS) and Rankin to Claiborne (Lowe 1921) counties and south to Forrest County (Rogers 1977), except for one curious old record from Tishomingo County in the extreme northeastern corner of the state (Lowe 1921).

CLUSIACEAE

Hypericum galioides Lam. Mississippi. Rankin Co.: ca 6.5 km SE of Brandon, 24 Jul 1995, *Morris 4340* (IBE, NGC). This population is in a seepage area along a stream and constitutes the northernmost record of *H. galioides* in Mississippi. Prior to this collection, the species was documented from Lawrence [(24 Jun 1957, *Ray 8283*, MISSA); (6 Jul 1966, *Jones 7722*, MISS)] to Wayne counties and farther south. Thus, this is a range extension of about 75 km from the nearest locality.

Hypericum setosum L. Mississippi. Rankin Co.: ca 8 km SW of Johns, 28 Jul 1995, *Morris 4363* (IBE, NGC). This St. John's-wort occurs at the margin of longleaf pine woods in a seepage area along a gas pipeline. Previous records of *H. setosum* in Mississippi are from Lawrence (31 Aug 1966, *Jones 9982*, MISS) to Clarke counties and southward. Thus, the Rankin County population extends the species' known range northwestward in the state by about 65 km.

GENTIANACEAE

Sabatia campanulata (L.) Torr. Mississippi. Rankin Co.: ca 8 km SW of Johns, 28 Jul 1995, *Morris 4370* (IBE, NGC). A local, but dense, population of this rose gentian is at the margin of longleaf pine woods in a seepage area along a gas pipeline. Representing a significant range extension in Mississippi, this station is approximately 100 km northwest of the nearest populations in Lamar (27 Jun 1967, *Jones 13616*, MISS), Forrest (Rogers 1977), and Wayne (21 Jul 1955, *Ray 5050*, MISSA) counties.

ILLICIACEAE

Illicium floridanum Ellis. Mississippi. Rankin Co.: ca 2.5 km E of Puckett, 14 Aug 1995, *Morris 4439* (IBE, NGC, SWSL); ca 10 km SE of Star, 25 Aug 1995, *Morris 4482* (IBE). The first population of star anise cited here is present in a ridge bottom forest in the floodplain of the Strong River. This ridge bottom is adjacent to several small swampy depressions, and *I. floridanum* locally dominates the understory in the transition area to the depressions. The latter population of star anise occurs in rich hardwoods and around low-lying areas in the undulating Dabbs Creek bottom and also locally dominates the understory. These Rankin County sites are the northwesternmost stations recorded thus far for *I. floridanum* in Mississippi. Elsewhere in the state, it is known from Copiah (29 Apr 1956, *Ray 5468*, MISSA) to Lauderdale (22 Nov 1969, *Clonts 464*, IBE) counties and southward.

IRIDACEAE

Iris cristata Ait. Mississippi. Rankin Co.: ca 3 km E of Star, 17 Aug 1995, *Morris 4445* (IBE). This collection documents the southernmost population of crested dwarf iris known in Mississippi. At this site, *I. cristata* is on the lower slope above a bay swamp in a deep ravine. The very slender rhizomes and relatively broad leaf blades of this *I. cristata* speci-

men helped avoid confusion with *I. verna*, which has much thicker rhizomes and usually more narrow leaf blades. In addition, *I. verna* is only known to occur south and east of Rankin County. The closest voucher specimens of *I. cristata* are from Carroll County in the Loess Bluff Region (16 Apr 1990, *Barbour 7033*, IBE), and Winston (24 Apr 86, *Smith 1982*, IBE) and Kemper (6 Apr 72, *McDaniel 15863*, IBE) counties in the North Central Plateau. Each of these collections is at least 150 km north or northeast of the Rankin County population.

LAMIACEAE

Hyptis alata (Raf.) Shinn. Mississippi. Rankin Co.: ca 10 km W of Puckett, 2 August 1995, *Morris 4392* (IBE, NGC). Usually found in bogs, flatwoods, wet thickets and clearings (Godfrey & Wooten 1981), musky mint occurs here in a boggy depression at the edge of longleaf pine woods. This is as far north as *H. alata* has ever been recorded in Mississippi. Jones (1976) shows that *H. alata* is mostly distributed from Amite to Greene counties and southward in Mississippi except for one population in Copiah County (4 Aug 1966, *Temple 3808*, MISS), about 60 km southwest of the Rankin County site. There are three additional peripheral populations, one in Covington County about 50 km due southeast of the Rankin County station (30 Jun 1962, *McDaniel 3265*, IBE), and two in Jones County about 85 km distant (21 Aug 1974, *McDaniel 19180*, IBE; 1 Sep 1978, *Morgan 1178*, IBE).

LAURACEAE

Persea palustris (Raf.) Sarg. Mississippi. Rankin Co.: ca 5 km NNE of Johns, 25 Jul 1995, *Morris 4343* (IBE); ca 9 km SW of Johns, 27 Jul 1995, *Morris 4355* (IBE, NGC). The first collection was made in a branch bay between ridges with dry longleaf pine woods, and this documentation of *P. palustris* is the most northern record of the species in Mississippi. At this locality, some individuals of swamp bay are at least 7 m in height. The second collection was made from a small 5 m tree in a well-developed bay swamp within Southern Mixed Hardwood Forest. Prior to these records, the documented range of swamp bay in Mississippi was from Simpson (8 Mar 1986, *Stewart 1780*, IBE) and Jones [(*Morgan 1979*); (28 Dec 1978, *Morgan 1544*, IBE)] counties southward to the Gulf Coast.

LILIACEAE

Melanthium virginicum L. Mississippi. Rankin Co.: ca 3.5 km E of Star, 7 Aug 1995, *Morris 4409* (IBE, MMNS). Considered imperiled to rare in Mississippi (MNHP 1996), Virginia bunchflower is present at this site in a bay swamp at the base of steep, sandy ravines; of 46 plants in this population, 20 had undergone anthesis and were forming capsules. The species is known in Mississippi from the following physiographic regions: Tennessee River Hills (MacDonald 1996), North Central Plateau (Morris 1987, 1988; Winstead 1990), Longleaf Pine Belt (Carter & Jones 1968, Rogers 1977), and Coastal Pine Meadows (MNHP 1996).

ONAGRACEAE

Ludwigia linearis Walt. Mississippi. Rankin Co.: ca 8 km SW of Johns, 30 Jul 1995, *Morris 4380 & Morris* (IBE). The population of this seedbox consists of scattered individuals in a low, wet seepage area at the margin of longleaf pine woods along a gas pipeline. *Ludwigia linearis* occurs here at the northwestern periphery of its range in Mississippi. Prior to this study, it was known from Simpson to Lauderdale counties and farther south in the Longleaf Pine Belt and Coastal Pine Meadows, with the exception of two records of the species in Monroe County in the Tennessee River Hills (Jones 1974; MacDonald 1996).

ORCHIDACEAE

Platanthera cristata (Michx.) Lindley. Mississippi. Rankin Co.: ca 10 km SE of Brandon, 31 Jul 1995, *Morris 4384* (IBE, MMNS). Approximately 105 individuals of this species co-occur with an equally large population of *P. ciliaris* in moist to wet flatwoods along a gas pipeline and adjacent to dry-mesic woods with scattered longleaf pines. Crested fringed orchid is listed as rare in Mississippi (MNHP 1996); favored habitats are pitcher plant bogs, bay swamps, relatively open grass-sedge meadows along spring branches, and wet flatwoods primarily in the eastern and southern portions of the state excluding the Black Prairie and Jackson Prairie regions.

Triphora trianthophora (Swartz) Rydb. Mississippi. Rankin Co.: ca 10 km SE of Star, 25 Aug 1995, *Morris 4483* (mwm). Three birds orchid is found at this site in Southern Mixed Hardwood Forest on a gentle, N-facing slope in the undulating Dabbs Creek bottom. It is an imperiled to rare species in Mississippi and has been documented only at widely scattered localities in the northern part of the state south to Smith and Clarke counties (MNHP 1996). Rankin is at the southwestern periphery of its range.

POLYGALACEAE

Polygala boykinii Nutt. Mississippi. Rankin Co.: ca 6 km SE of Brandon, 24 Jul 1995, *Morris 4338* (IBE, NGC, mwm). Growing along the border of upland pine-oak-hickory woods at this locality, *P. boykinii* appears to be restricted to the Longleaf Pine Belt, eastern Jackson Prairie, extreme southeastern North Central Plateau, and southern Black Prairie regions in Mississippi based on herbarium records at IBE, MISS, and MISSA. Thus, with the addition of this collection, the species ranges to Rankin and Hinds (Lowe 1921) counties in the northwest and Noxubee (11 Jun 1966, *Marler 23*, MISS; 14 Jun 1966, *Marler s.n.*, MISS) and Lowndes (Lowe 1921) counties in the northeast.

SCHISANDRACEAE

Schisandra glabra (Bickn.) Rehd. Mississippi. Rankin Co.: ca 10 km SE of Star, 24 Aug 1995, *Morris 4480* (IBE, MMNS). Scarlet woodbine is very local here, consisting of a population of 8 vines on a rich, well-drained terrace in the Dabbs Creek bottom. This woody vine is rare to uncommon in Mississippi (MNHP 1996). Although known from the Longleaf Pine Belt (Rogers 1977) and the western North Central Plateau (Winstead 1990), *S. glabra* is most common in the Loess Bluffs (Morris 1987, 1988).

THEACEAE

Stewartia malacodendron L. Mississippi. Rankin Co.: ca 11 km SW of Florence, 26 Jul 1995, *Morris 4348* (IBE, MMNS, NGC, SWSL); ca 9 km SW of Johns, 27 Jul 1995, *Morris 4353* (IBE, MMNS); ca 11 km ESE of Brandon, 5 Aug 1995, *Morris 4399* (IBE, MMNS). Silky camellia is a rare to uncommon shrub in Mississippi (MNHP 1996), and these Rankin County populations mark the northernmost known occurrence of the species in Mississippi. Previously, *S. malacodendron* was documented from Copiah to Smith and Wayne counties and southward in the Longleaf Pine Belt (MNHP 1996). The first Rankin County station is an extensive system of rich ravines with many N-facing slopes above Bear Creek; a total of 48 stems, some of which are 5-6 m tall, in four colonies comprise the population of silky camellia here. The northernmost population is on the lower slope of a N-facing ravine on Shiloh Hill, the highest point in the county, and the population southwest of Johns is on a steep, N-facing slope above a bay swamp.

ACKNOWLEDGMENTS

Ken Gordon, Mississippi Natural Heritage Program, is gratefully acknowledged for providing information concerning the distribution and

status of some of the species discussed in this paper. Dr. Sidney McDaniel (IBE and MISSA) and Dr. M. B. Huneycutt (MISS) are thanked for their cooperation concerning the herbarium collections cited herein and Dr. McDaniel also for the verification of *Iris cristata*. Field work was supported by a Mississippi Wildlife Heritage Fund 1995 Research Grant. Field assistance by Suzette Morris is deeply appreciated, and thanks are due Cornelia A. O'Neal and Mary L. O'Neal for facilities used in the preparation of herbarium specimens. Publication cost was paid by a North Georgia College & State University Faculty Research Grant.

REFERENCES

- CARRAWAY, D.T. 1990. A floristic study of the Tallahala Wildlife Management Area of Bienville National Forest, Mississippi. Master's thesis, Department of Biological Sciences, Mississippi State University, Mississippi State.
- CARTER, J.W. and S.B. JONES, JR. 1968. The vascular flora of Johnson State Park, Mississippi. *Castanea* 33:194–205.
- CLANCY, K. 1988. Morphology, anatomy, and demography of the Needle Palm (*Rhapidophyllum hystrix*). Dissertation, Department of Biological Sciences, Mississippi State University, Mississippi State.
- CLEWELL, A.F. 1985. Guide to the vascular plants of the Florida panhandle. Florida State University Press, Tallahassee.
- COLE, W.A., R.W. SMITH, M.L. SPANN, and D.C. STAMPS. 1987. Soil survey of Rankin County, Mississippi. United States Department of Agriculture, Soil Conservation Service in cooperation with Mississippi Agricultural and Forestry Experiment Station.
- GODFREY, R.K. 1988. Trees, shrubs, and woody vines of northern Florida and adjacent Georgia and Alabama. The University of Georgia Press, Athens.
- GODFREY, R.K., and J.W. WOOTEN. 1981. Aquatic and wetland plants of southeastern United States. Dicotyledons. Vol. 2. The University of Georgia Press, Athens.
- HARPER, R.M. 1914. A superficial study of the pine-barren vegetation of Mississippi. *Bull. Torrey Bot. Club* 41:551–567.
- HOLMGREN, P.K., N.H. HOLMGREN, and L.C. BARNETT (Eds.). 1990. Index herbariorum. Part I: the herbaria of the world, 8th ed. New York Botanical Garden, Bronx.
- JONES, S.B., JR. 1974. Mississippi flora. II. Distribution and identification of the Onagraceae. *Castanea* 39:370–379.
- JONES, S.B., JR. 1976. Mississippi flora V. The mint family. *Castanea* 41:41–58.
- LOWE, E.N. 1921. Plants of Mississippi, a list of flowering plants and ferns. Mississippi State Geol. Surv. Bull. 17. Hederman Bros., Jackson, MS.
- MACDONALD, J. 1996. A survey of the flora of Monroe County, Mississippi. Master's thesis, Department of Biological Sciences, Mississippi State University, Mississippi State.
- MILLS, R. and S.B. JONES, JR. 1969. The composition of a mesic southern mixed hardwood forest in south Mississippi. *Castanea* 34:62–66.
- MISSISSIPPI NATURAL HERITAGE PROGRAM. 1996. Special plants & animals: by county. Museum of Natural Science, Mississippi Department of Wildlife, Fisheries & Parks. Jackson, Mississippi.
- MORGAN, D.R. 1979. A floristic study of northeastern Jones County, Mississippi. Master's thesis, Department of Biological Sciences, Mississippi State University, Mississippi State.
- MORRIS, M.W. 1987. The vascular flora of Grenada County, Mississippi. Master's thesis, Department of Biological Sciences, Mississippi State University, Mississippi State.

- MORRIS, M.W. 1988. Noteworthy vascular plants from Grenada County, Mississippi. *Sida* 13:177–186.
- MORRIS, M.W. 1989. *Spiranthes* (Orchidaceae) in Mississippi. *Selbyana* 11:39–48.
- MORRIS, M.W., C.T. BRYSON, and R.C. WARREN. 1993. Rare vascular plants and associate plant communities from the Sand Creek Chalk Bluffs, Oktibbeha County, Mississippi. *Castanea* 58:250–259.
- RADFORD, A.E., H.E. AHLES, and C.R. BELL. 1968. *Manual of the vascular of the Carolinas*. The University of North Carolina Press, Chapel Hill.
- ROGERS, K.E. 1977. Vascular flora of the Ragland Hills area, Forrest and Perry counties, Mississippi. *Sida* 7:51–79.
- WARE, S., C. FROST, and P.D. DOERR. 1993. Southern mixed hardwood forest: The former longleaf pine forest. In: Martin, W.H., S.G. Boyce, and A.C. Echternacht, eds. *Biodiversity of the southeastern United States: Lowland Terrestrial Communities*. John Wiley & Sons, Inc., New York.
- WINSTEAD, R. 1990. A taxonomic and ecological survey of the plant communities of Attala County, Mississippi. Master's thesis, Department of Biological Sciences, Mississippi State University, Mississippi State.